Figure 1

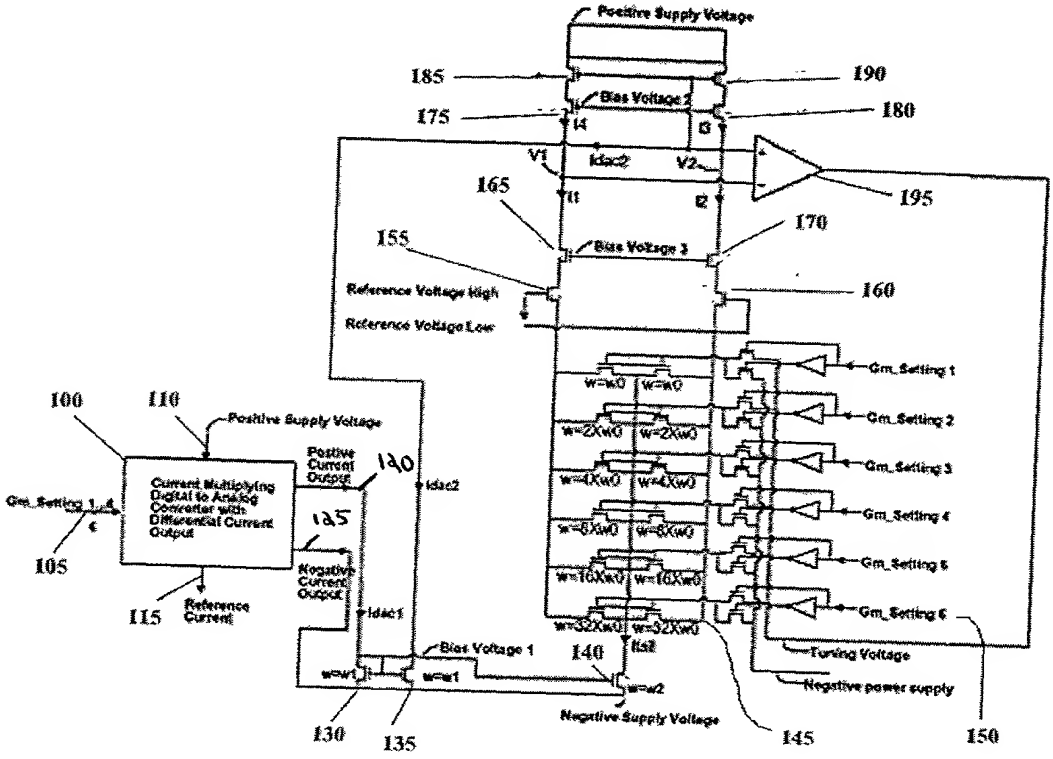

Positive Supply Voltage
185
190
Bias Voltage 2
175
180
I4
I3
V1
Idac2
V2
165
I1
I2
195
155
Bias Voltage 3
170
Reference Voltage High
160
Reference Voltage Low
Gm_Setting 1
Gm_Setting 2
Gm_Setting 3
Gm_Setting 4
Gm_Setting 5
Gm_Setting 6
100
110
Positive Supply Voltage
Current Multiplying Digital to Analog Converter with Differential Current Output
Gm_Setting 1..6
105
Positive Current Output
120
Idac2
125
Negative Current Output
Idac1
115
Reference Current
Bias Voltage 1
140
Tuning Voltage
Negative power supply
Negative Supply Voltage
130
135
145
150

Figure 2

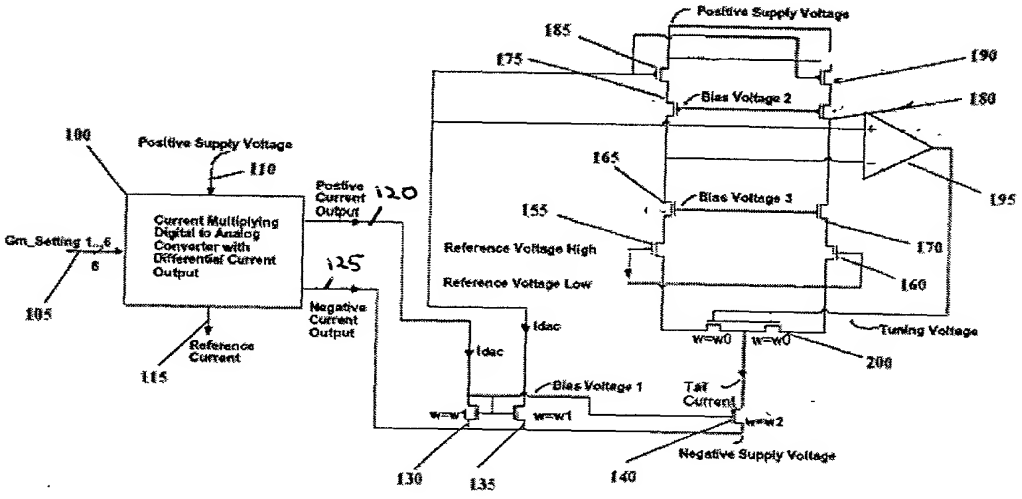

Positive Supply Voltage
185
175
190
Bias Voltage 2
180
100
Positive Supply Voltage
110
Positive Current Output
120
165
Bias Voltage 3
155
195
Gm_Setting 1...6
6
105
Current Multiplying Digital to Analog Converter with Differential Current Output
125
Reference Voltage High
Reference Voltage Low
170
160
Negative Current Output
Idac
Tuning Voltage
w=w0
w=w0
200
Reference Current
115
Idac
Bias Voltage 1
Tail Current
w=w1
w=w1
w=w2
Negative Supply Voltage
130
135
140

Figure 3

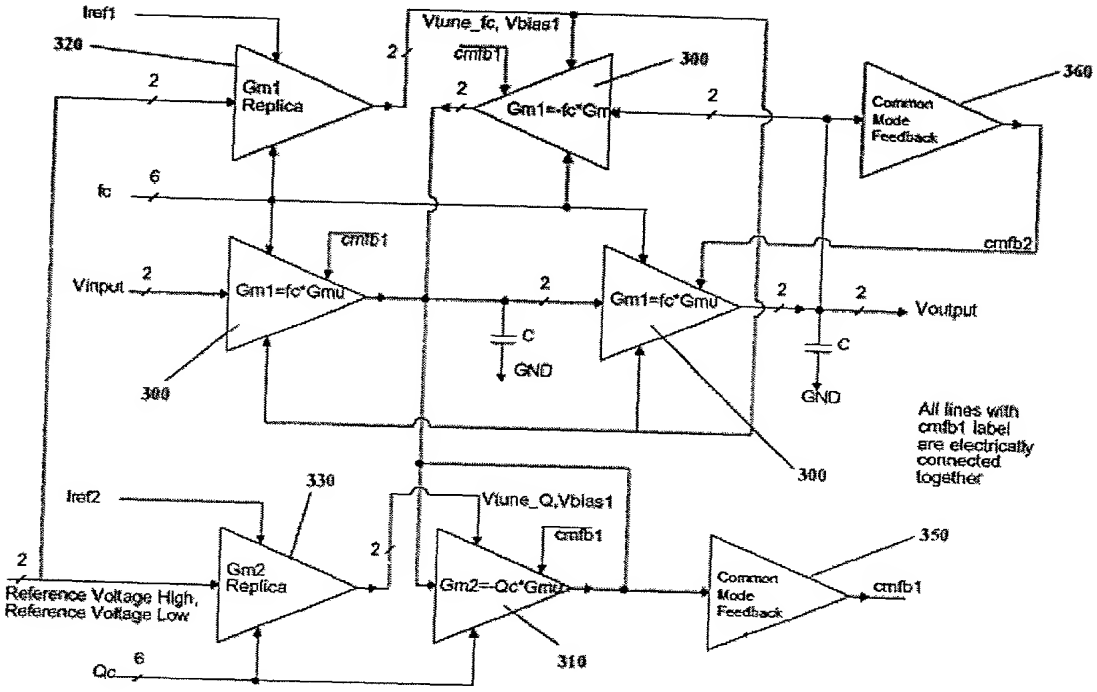
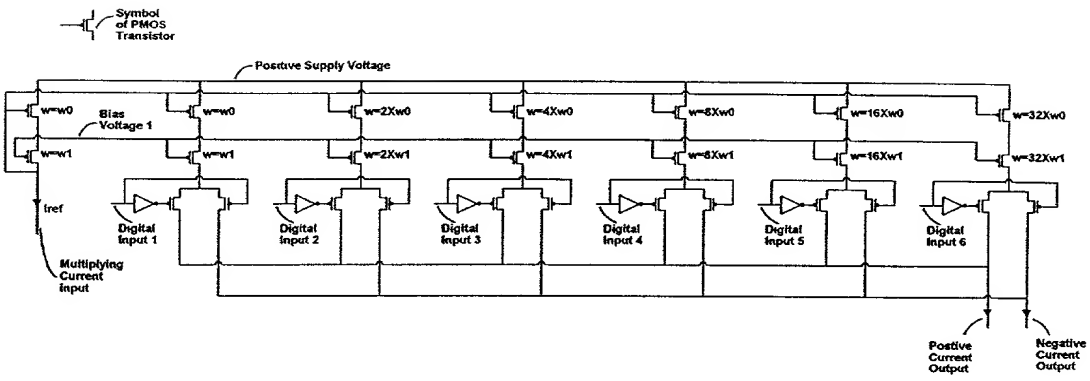

Iref1
320
2
Gm1 Replica
Vtune_fc, Vbias1
2
cmfb1
300
2
Gm1=fc*Gmu
2
Common Mode Feedback
360
fc
6
cmfb1
cmfb2
Vinput
2
Gm1=fc*Gmu
2
Gm1=fc*Gmu
2
2
Voutput
C
GND
C
GND
300
All lines with cmfb1 label are electrically connected together
Iref2
330
Vtune_Q,Vbias1
cmfb1
2
Gm2 Replica
2
Gm2=Qc*Gmu
Common Mode Feedback
350
cmfb1
2
Reference Voltage High, Reference Voltage Low
Qc
6
310

Figure 4


Symbol of PMOS Transistor
Positive Supply Voltage
w=w0
Bias Voltage 1
w=w1
w=w0
w=2Xw0
w=4Xw0
w=8Xw0
w=16Xw0
w=32Xw0
w=w1
w=2Xw1
w=4Xw1
w=8Xw1
w=16Xw1
w=32Xw1
Iref
Multiplying Current Input
Digital Input 1
Digital Input 2
Digital Input 3
Digital Input 4
Digital Input 5
Digital Input 6
Postive Current Output
Negative Current Output

400

Figure 5

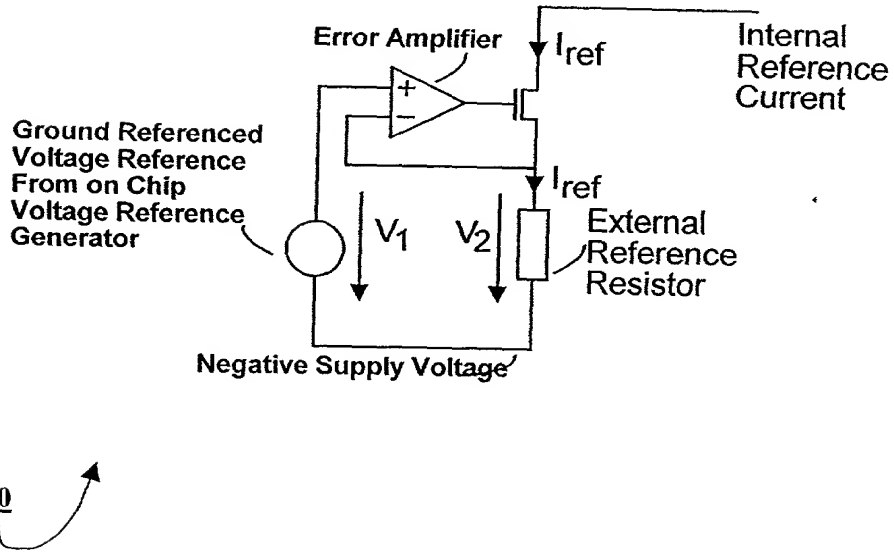
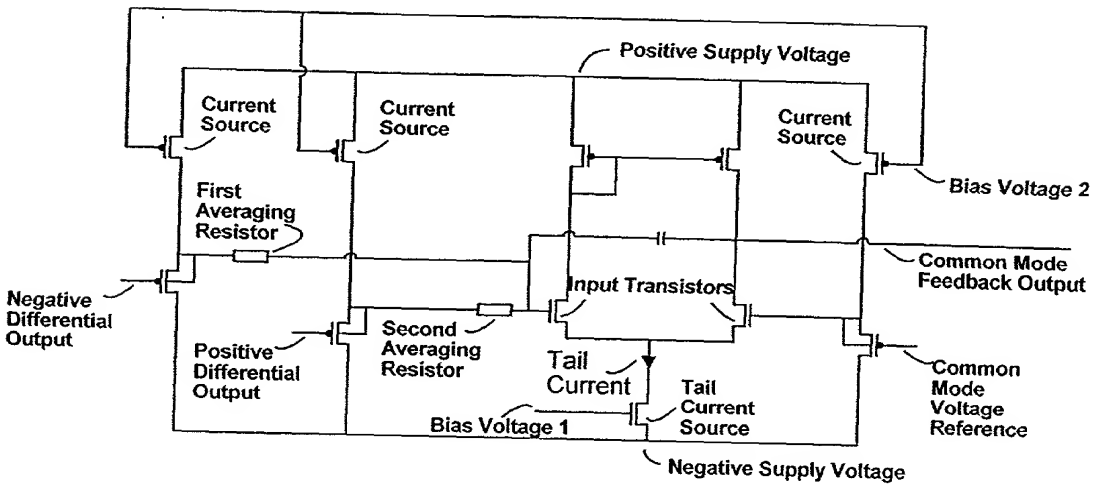

Error Amplifier
I_{ref}
Internal Reference Current
Ground Referenced Voltage Reference From on Chip Voltage Reference Generator
I_{ref}
V_1
V_2
External Reference Resistor
Negative Supply Voltage
500

Figure 6


Positive Supply Voltage
Current Source
Current Source
Current Source
Bias Voltage 2
First Averaging Resistor
Common Mode Feedback Output
Input Transistors
Negative Differential Output
Positive Differential Output
Second Averaging Resistor
Tail Current
Tail Current Source
Common Mode Voltage Reference
Bias Voltage 1
Negative Supply Voltage

600